BEYOND CONFUSION: PRINCIPLES FOR SUSTAINABLE INVESTING RATINGS AND AN OPEN ACCESS SDG SCORE

Jan Anton van Zanten[1,2,*]

Taeke Wiersma[1]

Rachel Whittaker[1]

Paul Ruijs[1]

Carola van Lamoen[1]

Rob van Tulder[2]

Cary Krosinsky[3,4]

This version: 01-10-2023

*Corresponding author: vanzanten@rsm.com; j.van.zanten@robeco.com

Acknowledgments: We thank Emilio Marti for constructive and insightful feedback.

Disclaimer: The authors are employed by, or affiliated with, Robeco. The views expressed in this paper are not necessarily shared by Robeco.

[1] Robeco
[2] Rotterdam School of Management, Erasmus University
[3] Yale University
[4] Brown University

Electronic copy available at: https://ssrn.com/abstract=4589799

BEYOND CONFUSION: PRINCIPLES FOR SUSTAINABLE INVESTING RATINGS AND AN OPEN ACCESS SDG SCORE

Abstract

This paper aims to advance the debate on sustainable investing ratings in two ways. First, it delineates principles that can inform the development of sustainable investing ratings that aim to support sustainable development. Second, it introduces the Robeco SDG score as a novel metric of sustainability performance that corresponds to these principles. This SDG score is made available for free in order to enable research, spark discussion, and further the state of sustainable investing ratings.

Keywords: Sustainable Investing; ESG; Responsible Investment; Sustainable Development Goals (SDGs); Asset Management

1. Introduction

Sustainable investing ratings[5] are under scrutiny. Environmental, Social and Governance (ESG) ratings are often used to create sustainable investing strategies. However, extant ESG ratings inadequately capture the social and environmental impacts that companies generate (van Zanten & Huij, 2022), leading to ineffective sustainable investing solutions (Bams & van der Kroft, 2022). Moreover, ESG ratings from different providers are poorly correlated, creating confusion about what such ratings actually measure (Berg et al., 2022). And popular media is critical. For instance, *The Economist* stated that ESG are "three letters that won't save the planet" [6], *Bloomberg* called ESG a 'mirage'[7], while the *Financial Times* even proclaimed ESG to be 'dangerous'[8]. On the back of such headlines, there are discussions to abandon sustainable investing and the measurement of sustainable business models altogether in some countries.

Critically, there is a need for nuance. ESG is often used as an umbrella term for anything at the nexus of investing and sustainability. Diverse types of ESG ratings are available, each of which may pursue different objectives. The most dominant ratings have the objective of measuring if companies face financially material E, S or G issues. Other, more novel, ratings for example assess companies' impacts on the Sustainable Development Goals (SDGs) and their sub-domains like climate change, biodiversity, or human rights. And there are assessments that measure companies' alignment with regulation such as the EU Taxonomy, or their involvement in controversies. This diversity, and the critiques on some of the ratings used by investors, creates much uncertainty about what types of ratings are needed to build effective sustainable investing strategies.

Charting a road forward for sustainable investing ratings is an important and urgent challenge. Sustainability issues are rising in frequency and severity. Scientists are warning that our window of opportunity for avoiding irreversible changes to our planet is closing (Steffen

[5] In this essay we focus on sustainable investing ratings for companies, which can be used as input into equity and fixed income investment strategies.

Electronic copy available at: https://ssrn.com/abstract=4589799

et al., 2015). Consequently, investors are increasingly called upon to contribute to sustainable development (Kölbel et al., 2020). The United Nations (UN) urges investors to help finance the 17 SDGs and make financial flows more consistent with limiting global warming (UN, 2015a; 2015b). Sustainable investing strategies that channel financing toward sustainability leaders and away from laggards, and that encourage companies to become more sustainable through active ownership, could contribute to these objectives. Moreover, sustainable investing changes the fields in which companies are embedded, thereby promoting more sustainable outcomes (Marti et al., 2023). But creating effective sustainable investing strategies requires investors to have access to ratings that give proper insights into the positive and negative impacts that companies exert on societies and the environment.

We intend to advance the debate on sustainable investing ratings in two ways. First, we delineate design principles for sustainable investing ratings. These specify conditions that we believe such ratings ought to adhere to in order to qualify as effective input into sustainable investment practices. These principles aid investors, researchers, regulators, and other stakeholders in judging the quality of the diverse ratings that are available. Our premise is that principles-based governance is essential for leveraging sustainable business practices in a world in which companies face transition challenges (van Tulder & van Mil, 2023). A principles-based approach to sustainable investing ratings aligns with other initiatives, such as the Green Bond Principles or the CFO Principles on Integrated SDG Investment and Finance. Second, we introduce the Robeco SDG score as a novel sustainable investing rating that corresponds to these principles and that is made available for free via the Robeco Open Access Initiative. This SDG score indicates if companies have a substantial positive or negative impact on the SDGs. Based on this we hope to contribute clarity, spark discussion, and promote transparency around sustainable investing ratings.

2. Principles for Sustainable Investing Ratings

We set out five design principles for sustainable investing ratings, based on our practical and academic experience with creating and using such ratings.

2.1 Measure companies' impacts on sustainable development

We propose that sustainable investing ratings should measure the positive and negative impacts of companies on sustainable development. The objective of sustainable investing is commonly understood as contributing toward sustainable development (e.g., Busch et al., 2016). The European Union (EU, 2019) similarly defines a sustainable investment as one in an activity that contributes to environmental and/or social objectives, without causing harm to those objectives, and while following good governance. This is akin to what Busch et al. (2021) call 'impact-aligned investments'. Ratings that determine if companies positively or negatively impact sustainable development thereby enable the creation of sustainable investing strategies.

However, measuring the positive and/or negative impacts of companies requires a universally valid definition of sustainable development. Sustainable development aims for present and future generations to be able to live a good life (WCED, 1987). As this is a contested topic, with numerous social and environmental topics that could fall within its scope (Leach et al., 2018; Redclift, 2005), confusion around which impacts ought to be measured looms large. Consequently, a universally valid understanding of sustainable development is needed. We propose that the SDGs can provide this.

Electronic copy available at: https://ssrn.com/abstract=4589799

Although we acknowledge that the SDGs are not perfect (see e.g., van Tulder et al., 2021), these 17 goals with their 169 targets and over 200 indicators were universally adopted by all UN member states as the global agenda for sustainable development until 2030, encompassing related intergovernmental agreements such as the Paris Agreement. The detailed set of targets and indicators can provide an opportunity for sustainable investing ratings to become more consistent with the measured dimensions, thereby providing an opportunity for reducing "scope divergence" of different ratings (Berg et al., 2022).

2.2 Determine significant harm

Sustainable investors have an obligation to not significantly harm environmental and social objectives. This is embodied in the EU's (2019) definition of a sustainable investment and follows the precautionary principle in environmental policy (Kriebel et al., 2001). Sustainable investing ratings must therefore determine whether companies cause harm to sustainable development. This is complex because companies can simultaneously both positively and negatively impact SDGs, which themselves can have positive and negative feedback loops (van Zanten & van Tulder, 2021). For instance, how does a company that makes products with positive impacts (e.g., solar panels) through practices that cause harm (e.g., child labor) score?

Currently, there are insufficient ratings that quantify positive and negative impacts across different sustainability goals and then result in an average score. These allow for positive impact on one goal to compensate for negative impact on another, even though these are not commensurable (e.g., renewable energy cannot compensate for child labor). Instead, we propose sustainable investing ratings to always fully rate companies causing substantial negative impact poorly, notwithstanding any positive effects it may also generate. Implementing this principle requires making value judgments as to what constitutes severity. Despite this being a subjective decision, not allowing positive effects to compensate for negative impacts may contribute to reducing 'weight divergence' among various ratings (Berg et al., 2022).

2.3 Incorporate sustainability science

Sustainable investing ratings need to incorporate sustainability science. Scholars established planetary boundaries that signal the carrying capacity of our planet. Moving beyond these boundaries is likely to lead to "a very different state of the Earth system, one that is likely to be much less hospitable to the development of human societies" (Steffen et al., 2015:1). However, providing basic needs for people in a way that is 'safe and just', at a globally sustainable level of resource use is a tremendous challenge (O'Neill et al., 2018). To make sure that objectives of both social and planetary well-being are taken into account, a social-ecological systems perspective can provide tangible avenues for improving sustainability outcomes (e.g., Biggs et al., 2015; Folke, 2016). Such insights are highly relevant for sustainable investing ratings, suggesting that the absolute nature of planetary boundaries and the complex relations between ecological and social systems ought to be taken into account. Operationalizing this principle requires a continuous assessment and integration of the latest expert insights on the sustainability impacts of companies and the products and services they sell.

2.4 Be globally applicable and locally relevant

Electronic copy available at: https://ssrn.com/abstract=4589799

Existing ratings have been criticized for favoring companies from richer countries and assigning poorer ratings to those of developing markets. A key reason is that companies from richer countries disclose more information about sustainability, not that companies from high-income countries have substantially different sustainability performance (Cai et al., 2016). Naturally, it is not expected that sustainability ratings are similarly distributed across countries. Yet sustainability ratings would do well to be globally applicable by assessing the sustainability performance of companies from different countries using the same yardsticks. At the same time, local dimensions are important to factor in. Some environmental challenges, like freshwater scarcity, are local in nature. And countries differ in the extent and types of sustainability challenges they face. Sustainable investing ratings ought to identify companies providing solutions in locations that need them the most, and that cause adverse impacts in the most vulnerable regions.

2.5 Be demarcated from investment tools

We call for a greater demarcation between investment and sustainability evaluation tools. Existing ratings frequently incorporate investment tools. One example is financial materiality. Most ESG ratings ask if environmental, social, and governance factors could impact a company's financial performance. However, not all financially relevant ESG factors correlate with sustainable development performance. For instance, environmental pollution or the exploitation of labor might not always be financially punished. While it is critical that investors integrate financially relevant sustainability risks and opportunities into their investment processes, financial materiality should not be part of a sustainability assessment. Consequently, because the most dominant ESG ratings measure financial materiality rather than impact materiality, they are better understood as risk metrics than as sustainable investing ratings (e.g., van Zanten & Huij, 2022).

The same applies to best-in-class scoring. Many existing ratings are normalized per sector which has the benefit of avoiding sectoral tilts in the construction of investment portfolios. But best-in-class scoring distorts the picture. Some sectors, like healthcare or renewable energy, are inherently associated with positive impacts, while others, such as tobacco or fossil fuels, are known for negative impacts. Sustainable investing ratings would do well to avoid normal distributions within sectors and score companies based on their overall positive and negative contributions to sustainable development.

3. Implementing the principles

Moving from theoretical principles to practical implementation is challenging. Below we highlight several (non-exhaustive) practical questions that need to be addressed in using these principles to create a sustainable investing rating:

- How do you determine how impactful particular products and services are?
- What is the level of analysis? Do you focus on individual companies or also on the impacts caused in their value chains?
- Do you focus on the direct impacts generated by corporate activities, or also on indirect effects that may materialize as a consequence?
- How do you score direct solutions (e.g., renewable energy) compared to indirect enablers (e.g., semiconductors)?

Electronic copy available at: https://ssrn.com/abstract=4589799

- What level of detail is required? Do you focus on sectoral effects or zoom in on individual products or a combination of these?
- How do you set thresholds that translate company performance into a score? For example, what proportion of thermal coal or oil revenues would qualify for a negative assessment? Do you set similar thresholds for different products, or do you make the thresholds product dependent?
- How do you aggregate positive and/or negative impacts of a company on different SDGs?
- How frequently should the framework be updated in order to best capture companies' impacts in a transitioning world? For instance, an automotive company whose sales consist for one third of electric vehicles is a leader in today's world. But as the sector transitions towards further electrification, in the future thresholds for assigning positive scores may increasingly need to become stricter.
- What is the update frequency of input data into the assessment and of the calculation of outputs?
- How do you deal with cultural differences in the perception of positive/negative impacts, for example relating to human rights?

These practical questions suggest that the design principles we laid out above can be operationalized in different ways. Consequently, even if raters adhere to the same principles, they may arrive at diverging conclusions due to different implementation. This presents a need for transparency in sustainable investing ratings, in terms of design principles, practical implementation, and outcomes.

We next illustrate how the principles can be operationalized into a sustainable investing rating.

4. A Sustainable Investing Rating based on the SDGs

We introduce the Robeco[9] SDG score as a novel sustainable investing rating that aligns with the above principles. This is one example, which we highlight due to our experience constructing and using it and because it is available for free for research purposes. We welcome additional ratings implementing these principles.

4.1 A framework for assessing the impact of companies on the SDGs

The Robeco SDG score is generated by analyzing companies with a three-step framework that is explained in detail in Robeco (2022). To summarize:

The first step assesses various impacts caused by the products and services that companies deliver. For instance, companies providing nutritious food, healthcare solutions, clean energy, or sustainable transport can receive positive scores on the most relevant SDGs. Those that produce thermal coal, weapons, or operate cruise ships will score poorly. A rules-based approach determines which SDGs are impacted by particular products or services, whereby the company's performance influences its score.

[9] Robeco is an international asset management firm. It is not a data provider. The SDG score presented in this paper is proprietary research that is used in the firm's investment processes. This score is not commercially traded.

Electronic copy available at: https://ssrn.com/abstract=4589799

The second step analyzes whether the way that companies operate has a substantial effect on the SDGs. It assesses general dimensions that are relevant to any company, like gender equality, as well as industry specific aspects, such as relations with local communities for mining companies or responsible marketing for pharmaceuticals.

The third step determines whether companies are involved in controversies. Here an assessment is made of how negative the impact of a scandal is on societies or the environment and whether the company is compensating for the harm that was caused. Based on whether the company has learned and changed its management practices, it also assesses the likelihood of similar scandals arising again in the future.

Companies are scored on all 17 SDGs within this framework. The scoring ranges from -3 (highly negative impact) to +3 (highly positive impact), with 0 implying that the company does not have a substantial impact on any goal. Because the framework aims to measure whether companies substantially impact the SDGs, on average companies impact around two goals. Subsequently, a total score is calculated for each company. Companies that only have neutral and positive scores on the 17 SDGs will get the highest (max) individual score as its final score. But as soon as a company has a negative score on any of the SDGs it receives the lowest (min) score as its final score, regardless of how many SDGs it may positively contribute to. Table 1 compares this SDG score to the principles that were set out above.

--- insert Table 1 ---

In general, we see around 20% of companies with a neutral score and thus do not substantially contribute to the SDGs. A quarter has a negative score, thereby harming sustainable development. The remaining 55% contributes positively to the SDGs, with around 13% of companies having highly positive (+3) scores. The distribution of SDG scores across sectors and SDGs is visualized in Figure 1. As shown, the SDGs that are most frequently positively impacted by companies are those focused on economic development (SDGs 8 and 9) and those aimed at advancing health (SDG 3) and sustainable cities (SDG 11). SDGs that companies mostly have a negative impact on are related to climate change (SDG 7 and 13), health (SDG 3), and peace and strong institutions (SDG 16).

--- Insert Figure 1 ---

4.2 Validity of SDG scores as a sustainable investing rating

Are the SDG scores able to capture the impacts that companies generate? This was tested in van Zanten & Huij (2022), who assessed whether poor scores are given to companies with negative impact and good ratings are assigned to those with positive impact. Samples of companies with negative impact are created by identifying firms that: (i) investors exclude from the investment process for sustainability reasons; (ii) violate the 'do-no-significant-harm' principle of the EU Taxonomy regulation; and (iii) are ranked among the highest greenhouse gas emitters.

Samples of companies with positive impact are made by identifying firms that are: (i) included in sustainable thematic portfolios; and (ii) generate over two-thirds of their revenues from activities that help mitigate climate change according to the EU Taxonomy. The results show that samples of companies with negative/positive impact generally receive poor/good SDG scores.

Electronic copy available at: https://ssrn.com/abstract=4589799

4.3 Open access

The SDG scores of over 12,000 companies are made available for free via the Robeco Open Access initiative. With this initiative, Robeco aims to enable research on sustainable investing and corporate sustainability, obtain feedback from market participants and academics, and contribute to the further development of sustainable investing ratings. The initiative was launched in August 2022. Currently, over 900 clients and 90 academics from around the world have access. The SDG scores can be retrieved online[10].

4.4 Use-cases for SDG scores

In practice, the SDG scores can be used to align investment strategies with the SDGs. The scores can be integrated in diverse ways. Investors can avoid investing in any company with a negative SDG score, they could tilt portfolios toward the highest scoring companies, or they can prioritize companies that score positively on individual SDGs to create thematic solutions. The scores can be used in equity, credit, and debt strategies. This does not need to harm financial performance. Early research finds that an equity strategy that only invests in companies with a neutral or positive SDG score has similar risk-return characteristics as the broader market, making SDG integration a viable option for passive as well as active investors[11,12]. The SDG scores can subsequently be used in reporting to show how a fund is positively and negatively exposed to the SDG.

Academically, the SDG score has diverse use-cases. In research, the score can serve as a variable that signals to what extent companies contribute to sustainable development, noting that its scope is limited to determining if companies have substantial impact (e.g., van Zanten & Rein, 2023). In academia, the SDG score can help students screen companies on sustainability to create model investment portfolios or company case studies.

5. Conclusions

Sustainable investing can play a role in alleviating global sustainability challenges. Creating effective sustainable investing strategies requires understanding the sustainability performance of the companies that might be invested in. However, there is a fierce debate around the use and (in)adequacy of existing sustainable investing ratings. We laid out five design principles that we trust can help create and test the validity of such ratings. To make this practical we also introduced the Robeco SDG score as a novel sustainable investing rating. This rating is now made freely available in an effort to enable research, promote discussion, and further the state of sustainable investing ratings.

[10] https://www.robeco.com/en-int/sustainable-investing/how-do-companies-and-countries-score-on-sustainability

Electronic copy available at: https://ssrn.com/abstract=4589799

REFERENCES

Bams, D., & van der Kroft, B. (2022). Tilting the Wrong Firms? How Inflated ESG Ratings Negate Socially Responsible Investing under Information Asymmetries. *MIT Center for Real Estate Research Paper,* (22/12).

Berg, F., Koelbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance, rfac033,* https://doi.org/10.1093/rof/rfac033

Biggs, R., Schlüter, M & Schoon, M.L. (Eds.) (2015). *Principles for building resilience: Sustaining ecosystem services in social-ecological systems.* Cambridge (UK): Cambridge University Press. https://doi.org/10.1017/CBO9781316014240

Busch, T., Bauer, R., & Orlitzky, M. (2016). Sustainable development and financial markets: Old paths and new avenues. *Business & Society, 55*(3), 303-329.

Busch, T., Bruce-Clark, P., Derwall, J., Eccles, R., Hebb, T., Hoepner, A., ... & Weber, O. (2021). Impact investments: A call for (re) orientation. *SN Business & Economics, 1*, 1-13.

Cai, Y., Pan, C. H., & Statman, M. (2016). Why do countries matter so much in corporate social performance? *Journal of Corporate Finance, 41*, 591-609.

European Union (2019). REGULATION (EU) 2019/2088 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 November 2019 on sustainability-related disclosures in the financial services sector. *Official Journal of the European Union.* 9.12.2019 L.317.

Folke, C. (2016). Resilience (republished). *Ecology and Society, 21*(4), 1–30. https://doi.org/10.5751/ES-09088-210444

Kriebel, D., Tickner, J., Epstein, P., Lemons, J., Levins, R., Loechler, E. L., ... & Stoto, M. (2001). The precautionary principle in environmental science. *Environmental health perspectives, 109*(9), 871-876.

Kölbel, J. F., Heeb, F., Paetzold, F., & Busch, T. (2020). Can sustainable investing save the world? Reviewing the mechanisms of investor impact. *Organization & Environment, 33*(4), 554-574.

Leach, M., Reyers, B., Bai, X., Brondizio, E. S., Cook, C., Díaz, S., ... & Subramanian, S. M. (2018). Equity and sustainability in the Anthropocene: A social–ecological systems perspective on their intertwined futures. *Global Sustainability, 1*.

Marti, E., Fuchs, M., DesJardine, M. R., Slager, R., & Gond, J. P. (2023). The Impact of Sustainable Investing: A Multidisciplinary Review. *Journal of Management Studies.*

O'Neill, D. W., Fanning, A. L., Lamb, W. F., & Steinberger, J. K. (2018). A good life for all within planetary boundaries. *Nature Sustainability, 1*(2), 88-95.

Redclift, M. (2005). Sustainable development (1987–2005): an oxymoron comes of age. *Sustainable development, 13*(4), 212-227.

Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., ... & Sörlin, S. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science, 347*(6223), 1259855.

UN. (2015a). *Transforming our world: The 2030 agenda for sustainable development.* New York: United Nations

UN. (2015b). *Addis Ababa Action Agenda of the Third International Conference on Financing for Development.* New York: United Nations.

van Tulder, R., Rodrigues, S. B., Mirza, H., & Sexsmith, K. (2021). The UN's sustainable development goals: can multinational enterprises lead the decade of action? *Journal of International Business Policy, 4*, 1-21.

van Tulder & van Mil. (2023). *Principles of Sustainable Business.* London: Routledge.

Electronic copy available at: https://ssrn.com/abstract=4589799

van Zanten, J. A. (2023). Measuring and Managing the Impact of Business on the SDGs. In *International Business and Sustainable Development Goals* (pp. 31-46). Emerald Publishing Limited.
van Zanten, J. A. & Huij, J. (2022). ESG to SDG: Do Sustainable Investing Ratings Align with the Sustainability Preferences of Investors, Regulators, and Scientists? (November 6, 2022). Available at SSRN: https://ssrn.com/abstract=4186680 or http://dx.doi.org/10.2139/ssrn.4186680
van Zanten, J. A., & Rein, B. (2023). Who owns (un) sustainable companies? Examining institutional determinants of sustainable investing. *Journal of Cleaner Production*, 138542.
van Zanten, J. A., & van Tulder, R. (2021). Improving companies' impacts on sustainable development: A nexus approach to the SDGS. *Business Strategy and the Environment, 30*(8), 3703-3720.
WCED. (1987). *Our Common Future*. In World Commission on Environment and Development. Oxford: Oxford University Press.

Electronic copy available at: https://ssrn.com/abstract=4589799

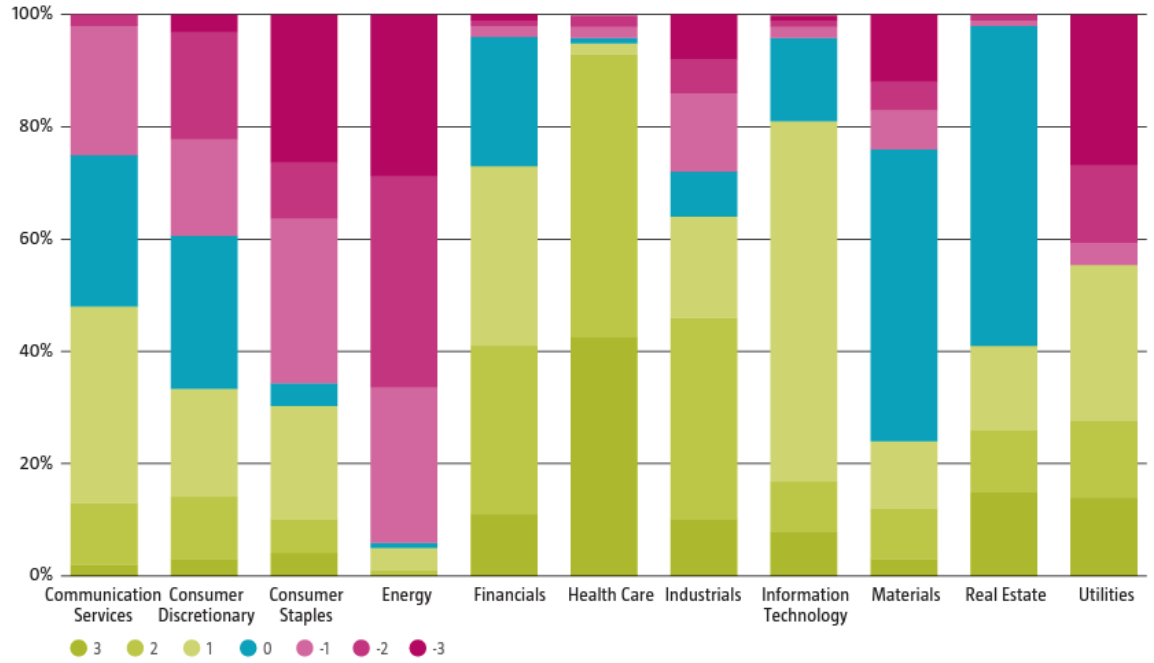
Table 1: Robeco SDG score in relation to the design principles for sustainable investing ratings

Principle	Robeco SDG score
1. *Measure companies' impacts on sustainable development*	The score aims to measure if companies have substantial positive and/or negative impacts on sustainable development as conceptualized by the SDGs. Through assessing how the products and services that companies deliver, and whether a company's operations structurally contribute to the SDGs, this score intends to identify significant positive and/or negative contributions to sustainable development, rather than accounting for all ecological and social effects that companies may generate.
2. *Capture significant harm*	Companies are scored on the 17 individual SDGs and subsequently receive a total score. Those that are assigned a negative score on any of the 17 SDGs will always receive a negative total score. This way, the score recognizes that all SDGs are integrated and indivisible, and that positive contributions to one goal cannot offset negative impacts on another.
3. *Incorporate sustainability science*	The score incorporates sustainability science. Academic research on the linkages between the economic activities that companies undertake, i.e., the products/services they deliver, is embedded into the SDG framework (as discussed in van Zanten (2023)). The framework is updated twice annually, in order to be able to incorporate new insights.
4. *Be globally applicable and locally relevant*	Companies are assessed with the same KPIs regardless of their location. The KPIs are determined in such a way that companies from all regions can be assessed and that differences in disclosure frequency and volume do not affect the scores. To determine local relevance, the SDG framework contains KPIs to see if companies provide solutions in emerging markets (which can lead to higher scores) and whether companies cause harm in areas that are particularly vulnerable, such as water scarce regions (leading to negative scores).
5. *Be demarcated from investment tools*	Financial materiality is no dimension of the SDG framework. Scores are not normalized across sectors and thus no best-in-class approach is applied.

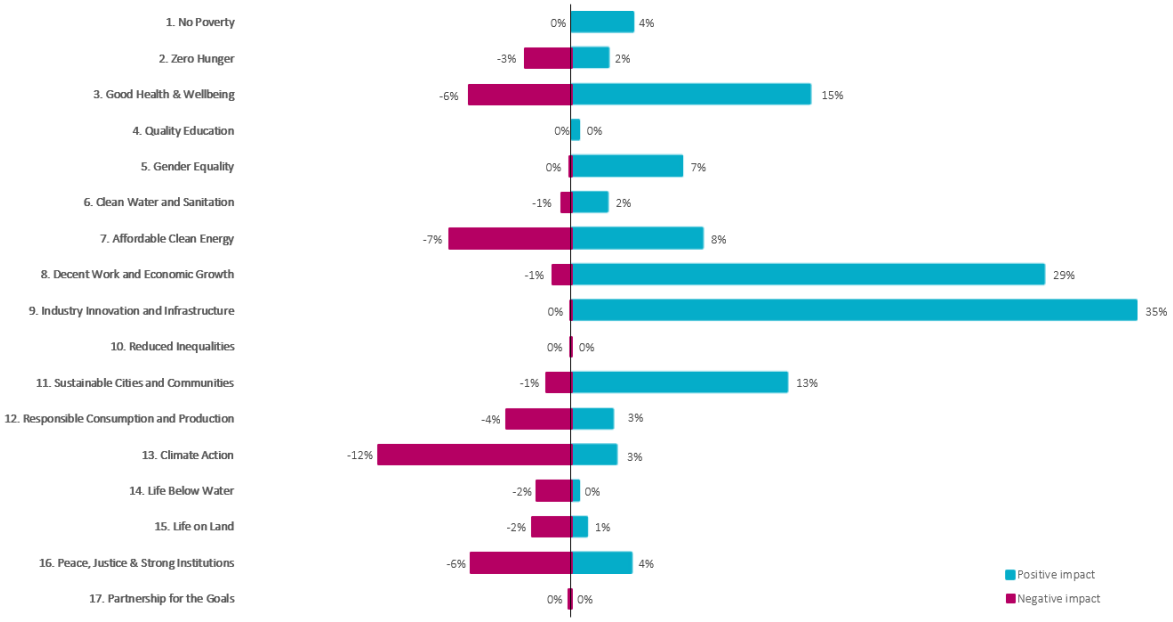
Electronic copy available at: https://ssrn.com/abstract=4589799

Figure 1: Distribution of SDG scores across sectors and SDGs

Panel A: This panel shows the distribution of SDG scores across sectors, using the MSCI All Country World Index as a sample (n=2896). There is a sectoral tilt, with some sectors having many companies that score positively (e.g., healthcare) or negatively (e.g., energy).



Panel B: This panel shows the proportion of companies in the MSCI ACWI that has a positive (teal) or negative (magenta) impact on the 17 SDGs. More economically oriented SDGs, like 8 (Decent Work and Economic Growth) and 9 (Industry, Innovation and Infrastructure) are the ones that are most frequently positively impacted. SDGs 13 (Climate Action), 7 (Affordable and Clean Energy), 3 (Good Health and Well-being) and 16 (Peace, Justice, and Strong Institutions) are most frequently negatively impacted.



Source: Robeco. Data as of 9 September 2023

Electronic copy available at: https://ssrn.com/abstract=4589799